

## REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1 to 5.

The above amendment is responsive to points set forth in the Official Action.

In this regard, the Examiner's suggestions in Official Action paragraph 2 have been incorporated by the above amendment, thereby overcoming the rejection under 35 U.S.C. 112.

In the above amendment, new claim 3 is presented, support for which is evident from paragraph [0027].

New claim 4 is supported by the disclosure of paragraph [0019].

Support for new claim 5 is evident from paragraph [0019].

Claims 1 and 2 have been rejected under 35 U.S.C. 103(a) as being unpatentable over either of Brooks '012 or Champagne '381, combined with Natansohn et al '381.

This rejection is respectfully traversed.

The rejection contends that Brooks teaches the formation of microholograms and, in Fig. 1, the laser beam is split into the reference beam (14) and object beam or scene beam (15) which overlap on the recording medium (20).

Notwithstanding the above contention in the Official Action, the illustration of Fig. 1 of Brooks fails to teach that the beams (14) and (15) overlap on plane (20) but rather, the reference beam (14) falls aside of the focusing point of the object beam (15).

With regard to the limitation of the irradiance ratio between the first and second light beams specified in claim 2 or new claim 3, it is very difficult or rather impossible to estimate the ratio from Fig. 1 of Brooks relative to the reference beam (14) and object beam (15). It would be a fair assumption, however, that the irradiance ratio of the reference to object beams in Fig. 1 of Brooks is very small because the object beam (15) is so sharply focused on plane (20), so as to greatly increase the irradiance while the reference beam is so broad without focusing so as to give a very small irradiance on plane (20) as compared with the focused spot of object beam (15).

The rejection further contends that Champagne teaches the use of double exposure holograms in defect or stress analysis occurring in, for example, an aircraft wing. Since the object of Champagne is so remote from that of the present invention, the pertinence of this reference to the claims is questionable. Moreover, the reference beam 68 (Fig. 2) and object beam 52 are equally broad on the member 50 under testing, contrary to the requirement in claim 1 that the diameter of the second irradiation spot be larger than the diameter of the first irradiation spot.

Brooks and Champagne each employ photochromic media. The principle of the Brooks and Champagne teachings is to induce a change in the molecular orientation, i.e. a change in the refractive index in the recording layer by irradiation with light which is known as a volume halogram..

In contrast thereto, the principle of the present invention is very different from the above. Namely, the present method is based on photinduced surface relief formation requiring physical migration of molecules in the surface layer as induced by light irradiation. In view of these very different principles of operation, the superficial similarity between these references and the present invention fails to make pertinent these references to the present invention.

In connection with Natansohn, the rejection contends that the reference discloses an azobenzene structure-containing polymeric compound, with suggestion of the use of the polymer for recording of gratings or holograms. It is pointed out that in the present invention, the polymeric compound should have a specified number-average molecular weight as recited in new claims 4 or 5 in order to exhibit the best performance while Natansohn is absolutely silent on the number-average molecular weight of their polymeric compounds.

Lastly, Natansohn is absolutely silent on the appearance of the photobias effect contrary to the present invention.


In sum, the inventive method is completely unobvious over combination of Brooks, Champagne and Natansohn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned at the telephone number below.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

*Please amend the following claims:*

1. **(Amended)** In a method for optical information recording by patternwise irradiating a thin film of a polymeric compound [having a chemical structure of] containing an azobenzene moiety with a first light beam falling in a first irradiation spot on the polymeric thin film to effect a morphological change of the polymeric thin film, the improvement which comprises simultaneously irradiating the polymeric thin film patternwise with a second light beam of substantially the same wavelength as the first light beam falling in a second irradiation spot, the diameter of the second irradiation spot being larger than the diameter of the first irradiation spot and the second irradiation sport enveloping the first irradiation spot.

2. **(Amended)** The [improvement] method as claimed in claim 1 in which the irradiance by the second light beam is in the range from 1% to 1000% of the irradiance by the first light beam.